REMARKS

Claims 1, 4, 5, 8-17, 55-67 were pending in the application and have been canceled without prejudice herein. Claims 68-81 have been added. No new matter has been added.

Restriction Requirement

Applicants note that new claim 68 corresponds to original claim 1, which as stated by the Examiner in the Restriction Requirement, " links Groups I-IV." As noted by the Examiner, " [t]he restriction requirement between the linked inventions is subject to the nonallowance of the linking claim(s), Claim 1." Applicants further elected the species of a mouse T cell as the host cell type; co-immunoprecipitation (claim 11) as the method of determination; GATA3 as the second polypeptide; and Th2 cell differentiation as the biological activity for search purposes only.

Rejection of Claims 1, 11, 13, 16-17, 55, 57-58, 61 and 66 Under 35 U.S.C. §112, First Paragraph (Enablement)

The Examiner has rejected claims 1, 11, 13, 16-17, 55, 57-58, 61 and 66 under U.S.C. §112, first paragraph, for lack of enablement. This rejection is traversed to the extent that it may be applied to new claim 68 and the claims that depend therefrom. Claim 68 requires that the KRC and GATA3 polypeptides are mammalian in origin. These polypeptides are shown in the instant application to interact. Applicants note that one of ordinary skill in the art and armed with the teachings of the instant specification could perform the claimed methods in cells which endogenously express one or both of these molecules as well as in cells which exogenously express one or both of these molecules without undue experimentation. While Applicants understand that the Examiner is currently considering the species of mouse cells, it is Applicants understanding that this is for search purposes only.

Rejection of Claims 1, 11, 16-17,55,57-58 and 66 Under 35 U.S.C. §103(a),

The Examiner has rejected claims 1, 11, 16-17,55,57-58 and 66 under 35 U.S.C. §103(a) as being unpatentable over Emerson (U.S.2002/0022021) in view of Haenlin et al (Genes and Develop.11 :3096-3108, 1997), Matthews et al (Eur. J. Biochem. 267: J 030-1038, 2000), Cubbada et al (Genes and Dev. 11 :3083-3095, 1997), (Arora et al, Cell 81 :781-790, 1995), Wu et al (Genomics 35:415-424,1996), Hicar et al (Genomics 71:89-100,2001) and Ting et al (Nature 384(6608):474-478,1996).

The Examiner has also rejected claims 13 and 66 as being unpatentable over the aforementioned combination of Emerson, Haenlin, Matthews, Cubbada, Arora, Wu, Hicar and Ting references, in further view of Lee et al (J. Immunol. 160:2343-2352, 1998).

These rejections are respectfully traversed to the extent that they may be applied to the newly pending claims. In formulating his rejection the Examiner relies on the above references as follows: Emerson as teaching a method for identifying a compound that modulates the interaction between a first polypeptide and a second polypeptide, wherein one of the polypeptides is a GATA-I protein; Haenlin and Matthews as teaching the physical interaction between the Drosophila GATA-I-like factor, Pannier, and the Drosophila zinc finger protein, Ush; and, Cubbada, Aura and Wu as teaching that Shn is a Drosophila KRC homologue and comprises a CCHC zinc finger that is structurally related to the zinc-finger motifs in Ush.

The Examiner concludes that the interaction of GATA3 and KRC "would have been ***predictable***, specifically in light of the topology of CCHC zinc-fingers, present in KRC and essential for GATA-binding" and, consequently, that the skilled artisan would have been motivated to modify the teachings of Emerson to arrive at the claimed methods (emphasis added).

Applicants traverse this rejection. Applicants were the first to discover the interaction of KRC with GATA-3 and submit that, given the knowledge in the art, it could not have been predicted at the time of filing that KRC would bind to GATA-1, let alone to GATA-3. Absent this predictability, the skilled artisan would have had no motivation whatsoever to modify the cited references to arrive at the claimed methods.

The Examiners arguments appear to be based, in part, on the assumption that all CCHC zinc fingers bind to all GATA-1 family transcription factors. However, this assumption is incorrect. It was well known in the art at the time of filing that ***only a subset of CCHC zinc fingers bind to GATA-1 proteins***. For example, as evidenced by Figure 1 of Liew et al.

(submitted herewith as Appendix A), only three of the five CCHC zinc fingers in Drosophila Ush actually bind to the Drosophila GATA-1 homologue, Pannier. Accordingly, it ***could not have been predicted***, at the time of filing, whether a particular CCHC would bind to GATA-1. Moreover, Applicants note that KRC only contains one CCHC zinc-finger as opposed to Drosophila Ush, which contains five.

In an attempt to establish the likelihood that the KRC CCHC zinger finger binding to GATA-1, the Examiners relies heavily on Cubbada as teaching the similarity of the Shn CCHC zinger finger to the GATA-1-binding zinc fingers of Ush. However, at the time of filing, it was well known in the art that ***only one of the two Ush CCHC fingers*** disclosed in Figure 6 actually binds to Drosophila GATA-1 homologue (see Figure 1 of Liew et al., submitted herewith as Appendix A). Thus, from the available data it ***could not have been predicted*** whether a Shn CCHC zinger finger will bind to the Drosophila GATA-1 homologue, let alone whether KRC will bind to GATA-3.

The Examiners arguments also rely heavily on GATA-1 and GATA-3 proteins having the same ability to bind to the CCHC zinc fingers, yet, the Examiner has provided no evidence whatsoever to suggest that the binding of CCHC zinc fingers to GATA-3 could have been predicted from the prior art. Moreover, that at the time of filing it was well known in the art that GATA-1 and GATA-3 were sufficiently functionally different such that GATA-3 could not substitute for GATA-1 in GATA-1 null mice (see Tsai et al., submitted herewith as Appendix B). Applicants submit that these functional differences between GATA-1 and GATA-3 preclude any predictability that GATA-1 and GATA-3 would bind to the same molecules in the cell.

Furthermore, none of the cited references teach or suggest that inhibition of the interaction between KRC and GATA3 would result in inhibition of Th2 cytokine promoter activation. The teachings of Cubbada (see, e.g., page 3091, last paragraph) and Haenlin cited by the Examiner demonstrate that transcriptional activity of Pannier is ***negatively regulated*** by heterodimerization with Ush. In contrast, as taught in the instant specification the interaction between KRC and GATA 3 results in increased Th2 cytokine promoter activation; therefore inhibitors of this interaction are useful for hinhibiting Th2 cytokine promoter activation. Moreover, as the specification points out, neither Shn-1 nor Shn-2 could augment GATA3 dependent IL-5 promoter activation when tested.

In sum, it could not have been predicted at the time of filing that KRC would bind to GATA-3, let alone that the inhibition of such binding would downmodulate transcription of at

least one Th2 cytokine gene. Absent this predictability, the skilled artisan would have had no motivation whatsoever to modify the cited references to arrive at the claimed methods. Accordingly, Applicants submit that the claimed methods are non-obvious and respectfully request reconsideration and withdrawal of this rejection.

CONCLUSION

Entry of the foregoing Amendment is in order and requested. Applicants respectfully submit that this Application is now in condition for allowance. If a telephone conversation with Applicants' Attorney would expedite the prosecution of the above-identified application, the Examiner is urged to call Applicants' Attorney at (617) 227-7400.

Applicant submits herewith a Petition for Extension of Time, together with the requisite fee. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 12-0080, under Order No. HUI-045CP2USRCE from which the undersigned is authorized to draw.

Dated: September 9, 2010

Respectfully submitted,

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